

AMENDMENT TO THE DRAWINGS

Please replace drawing sheets 1-3 with the replacement sheets submitted herewith.

REMARKS

The above amendments are made in response to the final Office Action mailed August 21, 2009, and were not submitted earlier because Applicants did not fully appreciate the Examiner's position until having viewed the remarks made in the August 21, 2009 Office Action. Applicants submit that the amendments merely clarify the structure of Applicants' invention and address new objections raised by the Examiner that were not necessitated by Applicants' earlier amendments, and should only require cursory review. Applicants respectfully request entry and favorable consideration of the amendments made herein.

Amendments to the specification

The specification is amended to add reference characters ($\Delta 1$) and ($\Delta 2$) to refer to the upstream and downstream differential angles. No new matter is introduced, and Applicants respectfully request that these amendments be entered without prejudice.

Amendments to the claims

Claim 1 is amended to clarify that an annular ridge protrudes from at least one of the surface of the upstream seat region (22) and the surface of the downstream seat region (20, 24).

Claims 1, 5, 6, and 7 are amended to refer to the "first" and "second" differential angles as "upstream" and "downstream" differential angles, to conform to the terms used in the specification, and to add the reference characters ($\Delta 1$) and ($\Delta 2$) to refer to these differential angles..

Claim 9 is amended to remove multiple dependencies.

These amendments are supported by the specification and the drawings as filed, and no new matter is introduced. Applicants respectfully request that these amendments be entered without prejudice.

Amendments to the drawings

Figures 2 and 3 are amended to add reference characters ($\Delta 1$) and ($\Delta 2$) to identify the upstream and downstream differential angles. Figure 1 is amended to identify it as prior art. No new matter is introduced, and Applicants respectfully request that these amendments be entered without prejudice.

Claim Objections

Claims 10-11 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 4 (sic). Applicant submits that the claims as presented are in proper form because claims 10-11 are singly dependent on claim 9, which is a proper multiple dependent claim. However, to facilitate examination of the claims, claim 9 is herein amended to remove multiple dependencies. Applicant requests that the objections to claims 10-11 be withdrawn.

Drawing Objections

The drawings are amended to add reference characters ($\Delta 1$) and ($\Delta 2$) to identify the claimed upstream and downstream differential angles, previously referred to as first and second

differential angles. Applicants submit that this amendment obviates the drawing objections in the Office Action, and respectfully request that the objections be reconsidered and withdrawn.

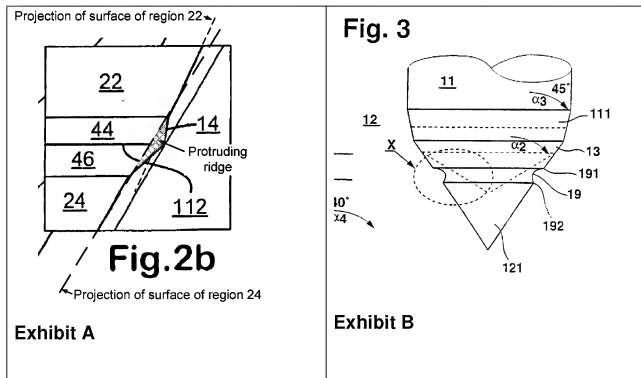
Claim Rejections – 35 USC §102

Claims 1-4 stand rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,427,932 to Danckert et al. Applicants traverse this rejection.

Applicants' invention in claim 1 as amended specifies, in part, that the valve member (10) further comprises an annular ridge (40) protruding from at least one of the surface of the upstream seat region (22) and the surface of the downstream seat region (20, 24) and being disposed immediately downstream of the upstream seat region (22), wherein the protruding annular ridge (40) defines a seating line (112) having a seat diameter, the seating line (112) being engageable with the valve seating surface (14) to control fuel injection from the nozzle body (16).

Applicants' invention includes a distinct, additional raised ridge (40) protruding from at least one of the surface of the upstream seat region (22) and the surface of the downstream seat region (20, 24), with the ridge defining the seating line. In contrast, in Danckert, the seating line between the upstream seat region (transition surface 111) and downstream seat region (sealing surface 13) is merely defined at the line of intersection between these regions. The advantages of this protruding annular ridge as disclosed in Applicants' specification (see for example page 10 line 24 *et seq.*) include reducing the risk of unwanted local contact between the seating surface and the valve needle caused by deviation in straightness or form of the seating surface, as well as improving product to product consistency at manufacture.

To further illustrate the distinction between Applicants' invention and Danckert's disclosure, attention is directed to Exhibits A and B below. Exhibit A is an annotated reproduction of Fig. 2b of Applicants' specification. Lines are added representing the projections of the surfaces of upstream seat region 22 and downstream seat region 24, which corresponds to the surface of the valve member absent the protruding ridge. The crosshatched region in Exhibit A represents the *annular ridge protruding from at least one of the surface of the upstream seat region and the surface of the downstream seat region and being disposed immediately downstream of the upstream seat region* as described in claim 1. In fact, Exhibit A illustrates a protruding ridge having both an upstream ridge portion 44 protruding from the surface of the upstream seat region 22 and a downstream ridge portion 46 protruding from the surface of downstream seat region 24.



In contrast, Danckert's Fig. 3 is reproduced as Exhibit B. Clearly, Danckert shows no element protruding from at least one of the surface of the upstream seat region (identified by the Examiner as Danckert's element 111) and the surface of the downstream seat region (identified by the Examiner as Danckert's element 13). The line of intersection where these two regions meet *does not protrude* beyond either of the intersecting surfaces; rather, it is just the natural consequence of the intersection of two conical sections.

In the Office Action, the Examiner presented an illustration labeled "Exhibit B provided by Applicant appropriately Resized" and comments which are reproduced in the box below. Applicant respectfully submits that this illustration does not show a ridge protruding from either of the surfaces of the upstream or downstream seat regions, as required by Applicants' amended claim 1. The portion grayed out in the illustration merely protrudes from an arbitrary line added by the Examiner. The added arbitrary line represents neither the surface of the upstream seat region nor the surface of the downstream seat region.

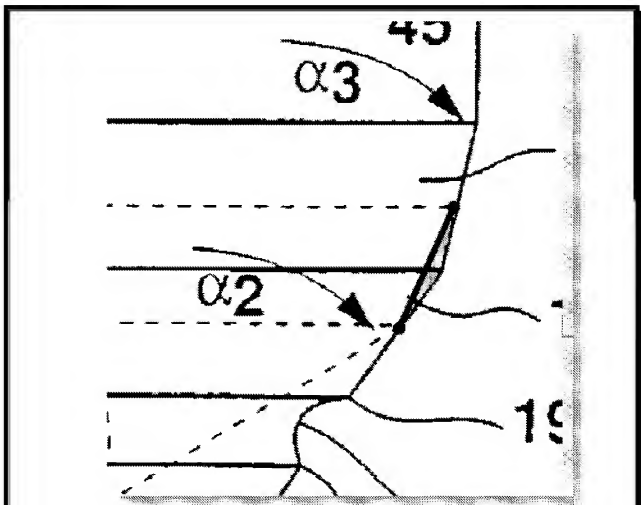


Exhibit B provided by Applicant appropriately Resized

In the zoomed view of Exhibit B, a line was added to connect the outer wall of the mid section of the transition surface (111) and the seating surface (13), and the protruding portion was greyed out to more clearly define itself. Clearly it can be seen that the surfaces of Danckert disclose a protruding ridge provided by the lower half of transition surface (111) and the top half of seating surface (13) in the same manner as applicant's protruding ridge is defined by the upstream ridge region (44) and the downstream ridge region (46)

The protruding annular ridge protruding from at least one of the surface of the upstream seat and the surface of the downstream seat region as specified in Applicants' invention is neither anticipated nor rendered obvious by Danckert. Applicants respectfully submit that claim

1 as amended is patentable over Danckert, and requests that the rejection of claim 1 be reconsidered and withdrawn.

Regarding claims 2-12, Applicants respectfully submit that these claims are allowable at least for the reason that they depend from claim 1, which is believed to be allowable. Applicants request that the rejection of claims 2-12 be reconsidered and withdrawn.

It is believed, in view of the amendments and remarks herein, that all grounds of objection and rejection have been addressed and overcome, and that all claims are in condition for allowance. The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0831.

Respectfully submitted,

/Patrick Griffin/

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